FIG. 1

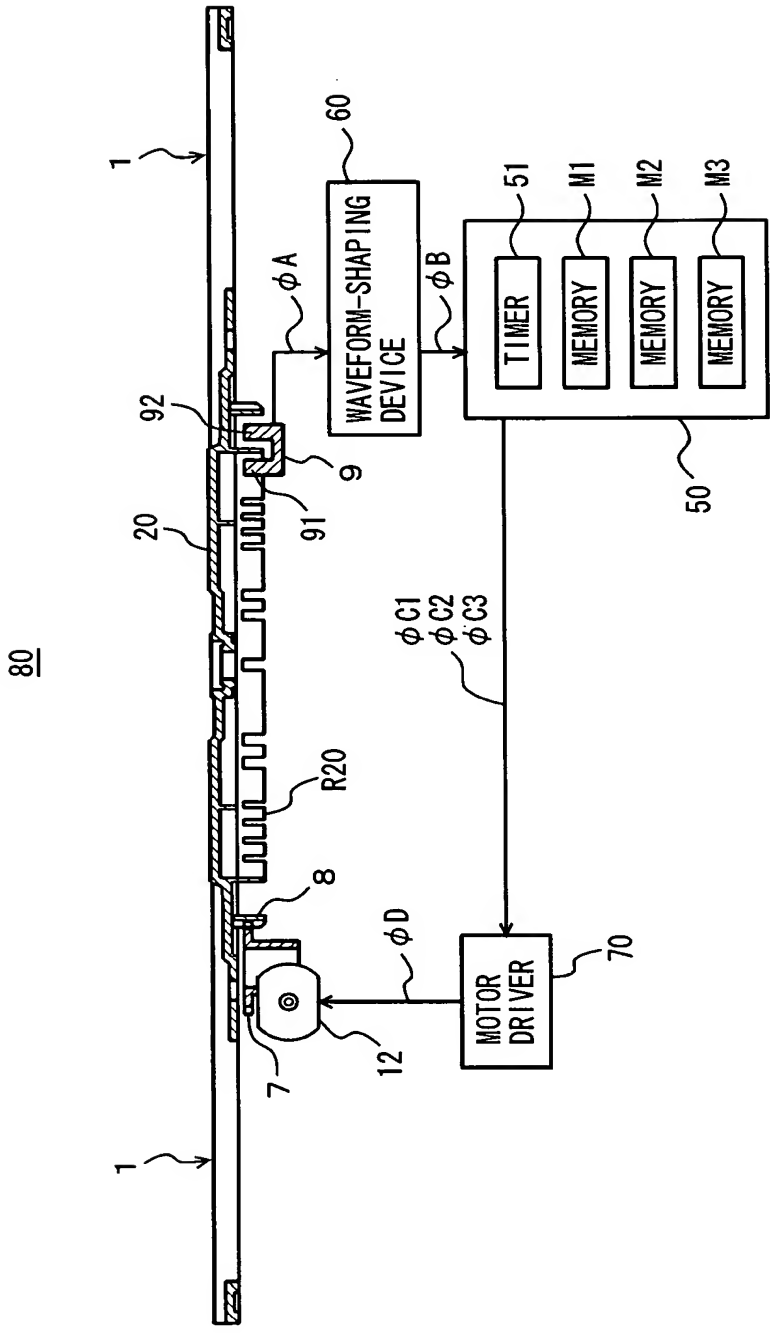
80
1
1
60
WAVEFORM-SHAPING DEVICE
φA
φB
51
TIMER
M1
MEMORY
M2
MEMORY
M3
MEMORY
50
92
9
91
20
φC1
φC2
φC3
R20
8
φD
MOTOR DRIVER
70
12
7

FIG. 2

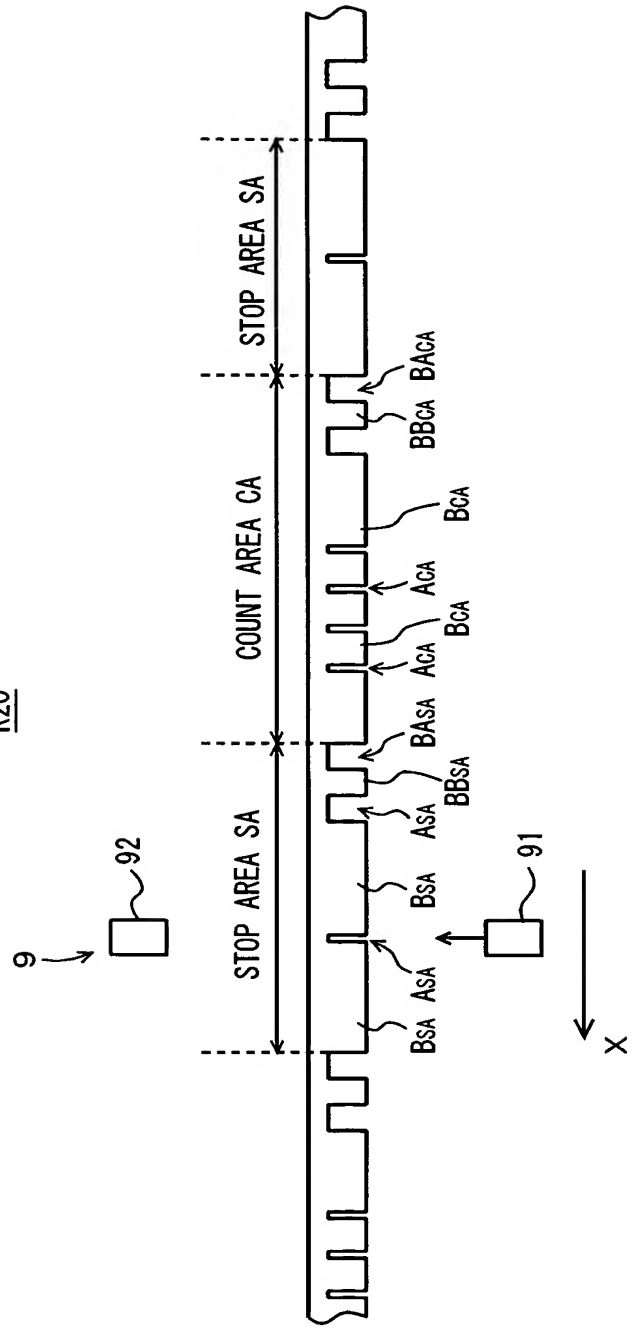
R20
9
92
91
STOP AREA SA
COUNT AREA CA
STOP AREA SA
X
BSA
ASA
BSA
ASA
BBSA
BASA
ACA
BCA
ACA
BCA
BBCA
BACA

FIG. 3

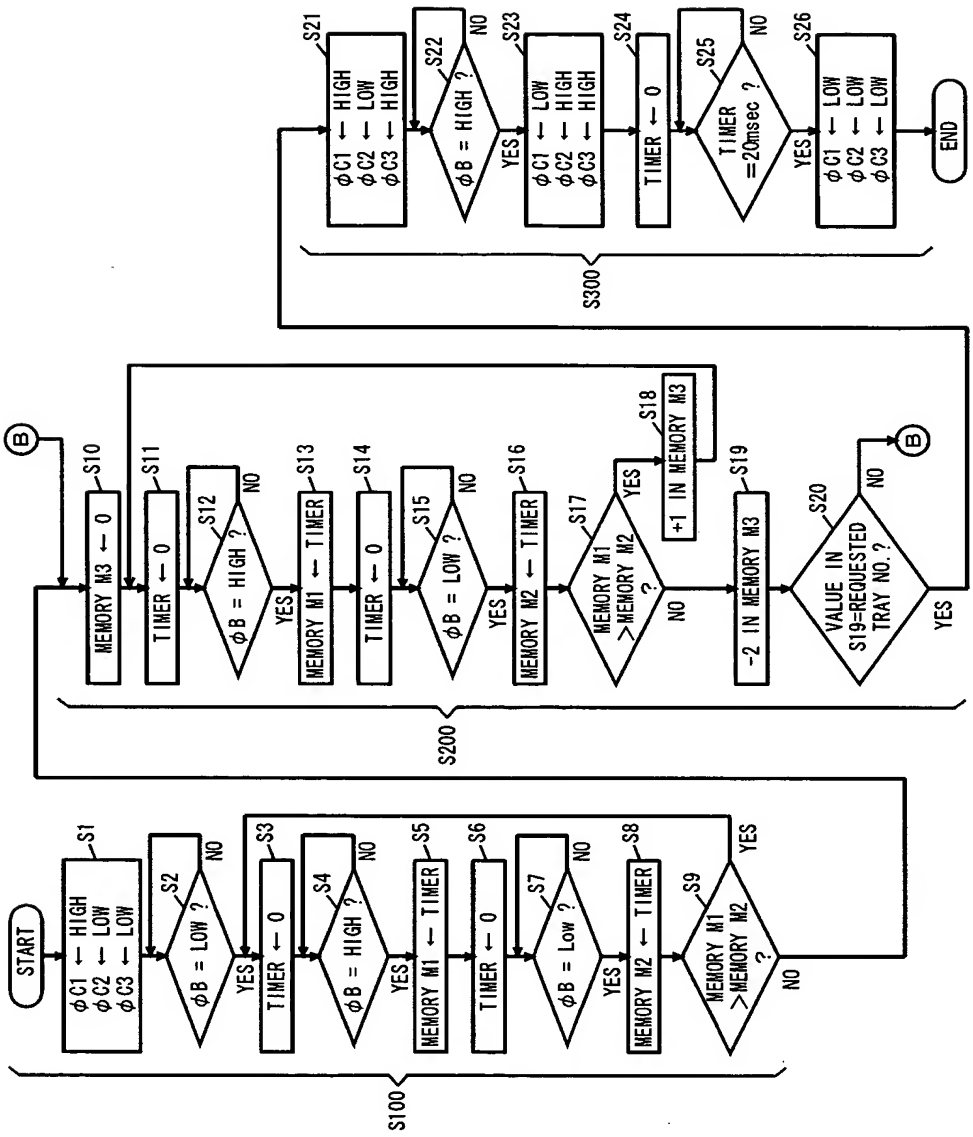
START
φC1 ← HIGH
φC2 ← LOW
φC3 ← LOW
S1
φB = LOW ?
S2
NO
YES
TIMER ← 0
S3
φB = HIGH ?
S4
NO
YES
MEMORY M1 ← TIMER
S5
TIMER ← 0
S6
φB = Low ?
S7
NO
YES
MEMORY M2 ← TIMER
S8
MEMORY M1 >MEMORY M2 ?
S9
YES
NO
S100
B
MEMORY M3 ← 0
S10
TIMER ← 0
S11
φB = HIGH ?
S12
NO
YES
MEMORY M1 ← TIMER
S13
TIMER ← 0
S14
φB = LOW ?
S15
NO
YES
MEMORY M2 ← TIMER
S16
MEMORY M1 >MEMORY M2 ?
S17
YES
+1 IN MEMORY M3
S18
NO
-2 IN MEMORY M3
S19
VALUE IN S19=REQUESTED TRAY NO.?
S20
NO
B
YES
S200
φC1 ← HIGH
φC2 ← LOW
φC3 ← HIGH
S21
φB = HIGH ?
S22
NO
YES
φC1 ← LOW
φC2 ← HIGH
φC3 ← HIGH
S23
TIMER ← 0
S24
TIMER =20msec ?
S25
NO
YES
φC1 ← LOW
φC2 ← LOW
φC3 ← LOW
S26
END
S300

FIG. 4

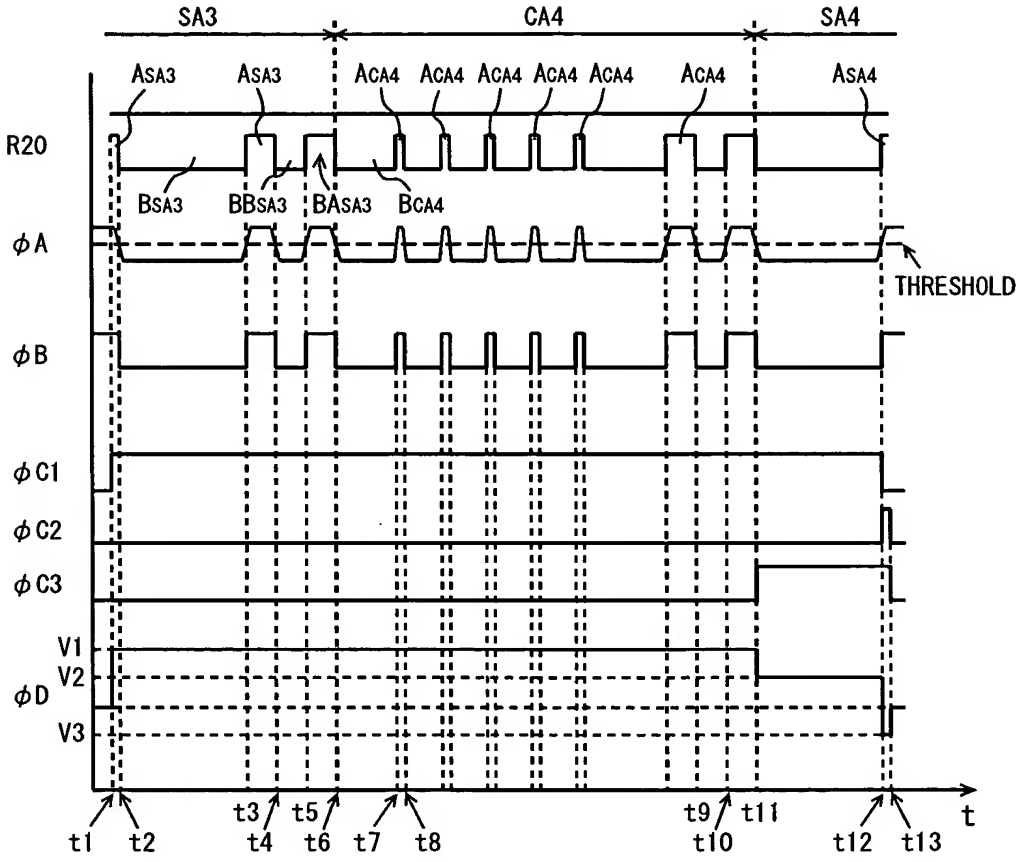
SA3
CA4
SA4
ASA3
ASA3
ACA4
ACA4
ACA4
ACA4
ACA4
ACA4
ASA4
R20
BSA3
BBSA3
BASA3
BCA4
φA
THRESHOLD
φB
φC1
φC2
φC3
V1
V2
φD
V3
t1
t2
t3
t4
t5
t6
t7
t8
t9
t10
t11
t12
t13
t

FIG. 5 PRIOR ART

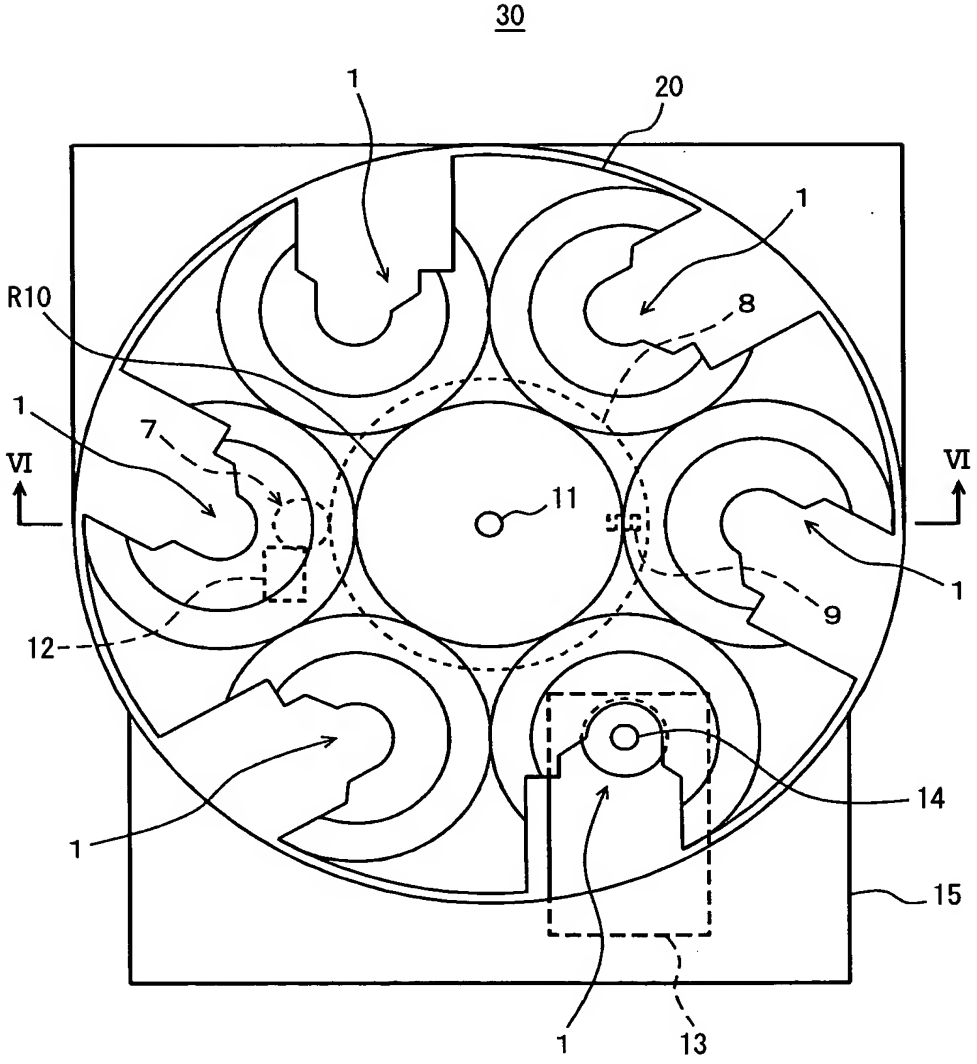

FIG. 6 PRIOR ART

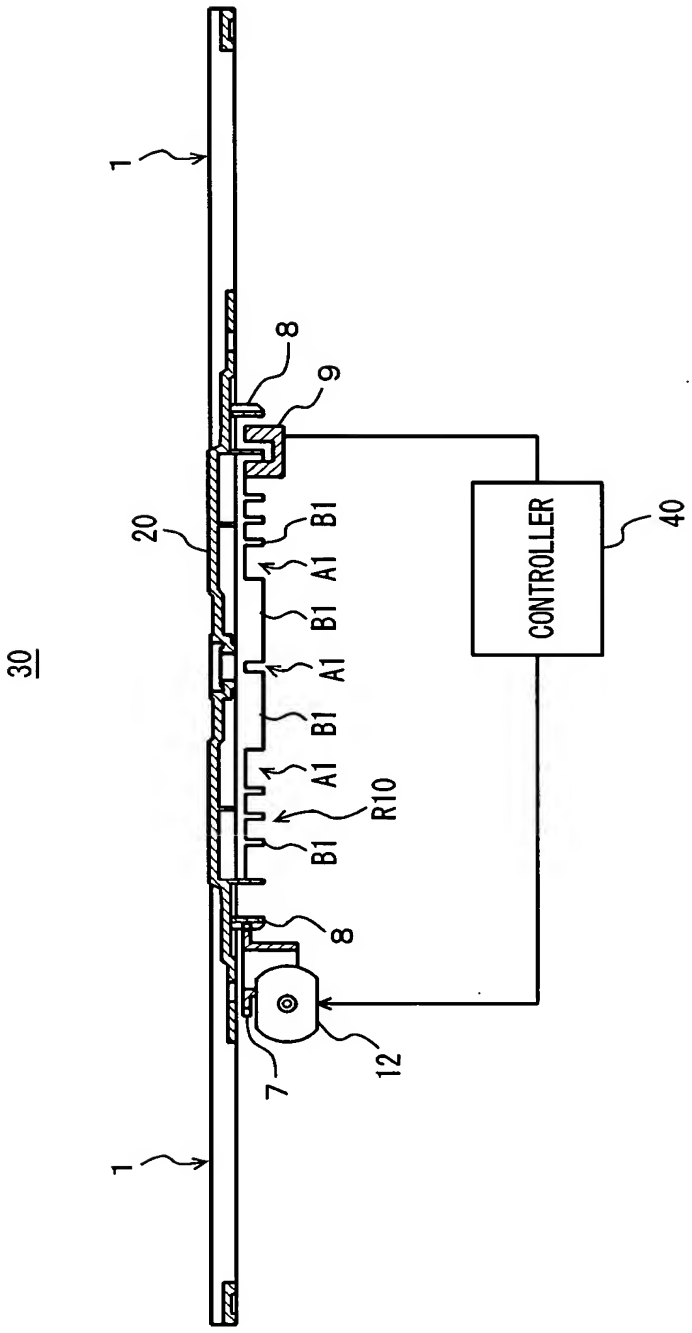

FIG. 7 PRIOR ART

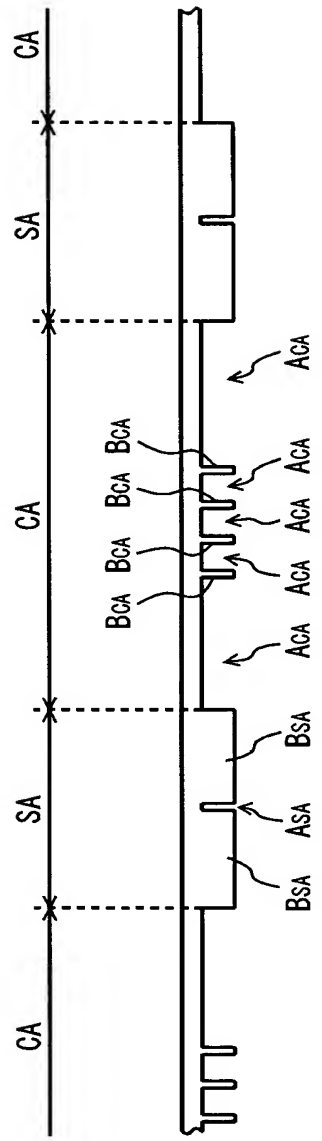

FIG. 8 PRIOR ART

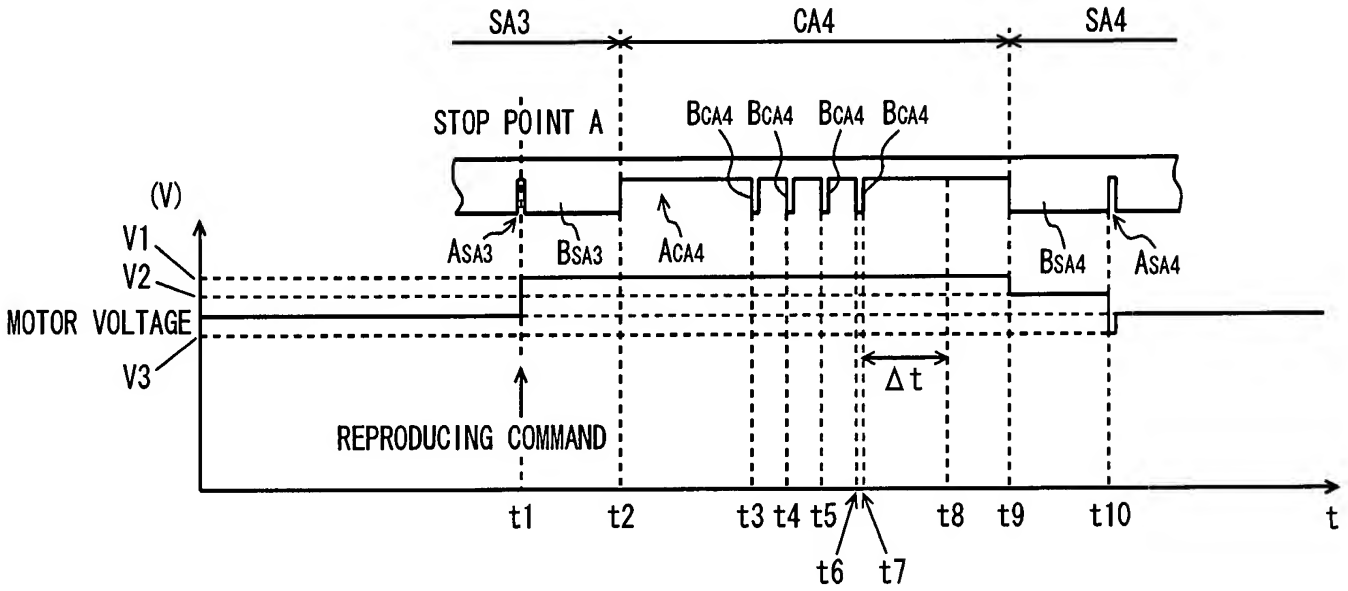
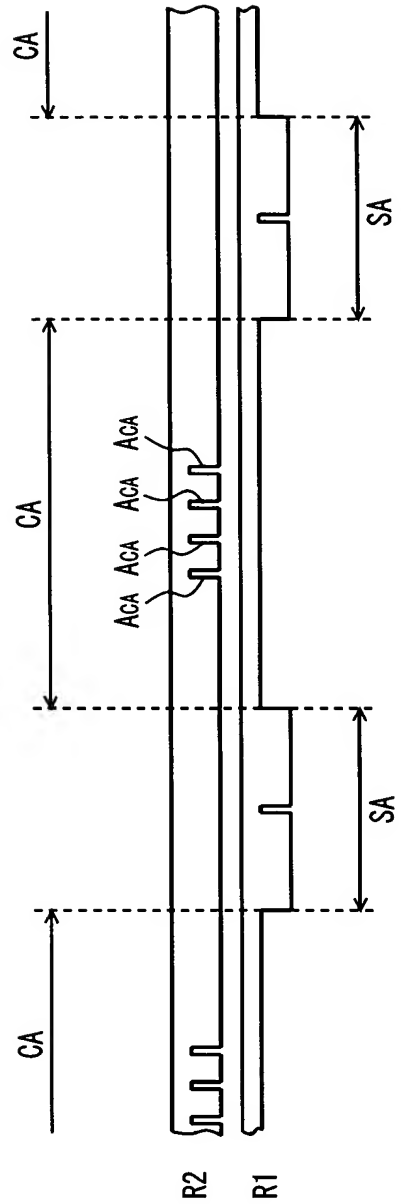
FIG. 9 PRIOR ART